A CLINICAL STUDY OF ANTERIOR CHAMBER I. O. L. IMPLANTATION

THESIS

For

MASTER OF SURGERY

(OPHTHALMOLOGY)

Approved

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DR. G. D. GUPTA

Head of Department of Ophthalmology

M. L. B. Medical College, JHANSI

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SHIV KUMAR

A C K N O W L E D G E M E N T S

When it comes to express the heart felt gratitude towards those who were life and foul to his work my situation is aptly summed up by the lines when the heart is full, the tongue is silent words if they could be adequatly used would perhaps still not suffice in bringing forth the totality of my gratefullness for those concerned. Neverthless, I will certainly not spare this fortunate opportunity of conveying my feelings in all their humbleness.

The immense and generous helps compounded by the expert guidance and constant encouragement extended by Dr. B.S. Jain, M.S., Assistant Professor in ophthalmology, M.L.B. Medical College, Jhansi has imbeded in me an unflagging zeal for this work. His ready accessibility even at his personal inconvenience, has heartining words provided the self confidence so vital for undertaking such a project. This study carries the glittering impoints of his dynamic personality, wise and concrete suggestions and meticulous attention to detail.

A feeling of sincere gratefulness overwhelms me when I consider my revered and benevolent teacher V. Misuriya, M.S., Assistant Professor in Ophthalmology, M.L.B. Medical College, Jhansi under whose masterly guidance, brotherly attitude and lively temperament, I had an opportunity to work. I find myself lacking when it comes to choosing adequate words to express myself.

For Dr. G.D. Gupta, M.S., D.O.M.S., Associate Professor and head in Ophthalmology, M.L.B. Medical College, Jhansi. I have the deepest respect and a sense of perpetual indebtedness. He has a source of unlimited help and profound knowledge without freely banking upon which it would have been impossible to complete this awesome task. His discerning criticism seasoned rationale and affectionate nature were a constant beacon of moral support to me.

All of my colleguas and friends, whose co-operation and pains taking help are unaccountable deserve a special words of thanks, Dr. B.S. Bist, Dr. S.N. Pandey, Dr. Ashok Kumar, Dr. G. Singh, Dr. Anil Rastogi, Dr. Sushil Kumar must be mentioned here.

At this moment of glorry and award I humbly accept that all credit accrued actually goes to my parents and younger brothers. Their affection sacerifies and patience have made all this worth while.

My heart felt gratitude and thankfulness is for the patients who were the base of this project to all of them I have to say without you this could not have been possible.

The entire monuscript has been typed in an exemplarry manner by Shri K.C. Sharma. I am highly thankful to him for his patient and untiring efforts.

Date: 16.11.91

(SHIV KUMAR)

C E R T I F I C A T E

Certified that the research work entitled "A CLINICAL STUDY OF ANTERIOR CHAMBER INTRAOCULAR LENS IMPLANT" which is being submitted as thesis for M.S. (OPHTHALMOLOGY) examination of Bundelkhand University 1992 by Dr. SHIV KUMAR has been carried out in the department of Ophthalmology, M.L.B. Medical College, Jhansi.

He has put in the necessary stay in the department as per University regulations.

Date: 16-11-91

(G. D. GUPTA)
M.S., D.O.M.S.
Associate Professor and Head,
Department of Ophthalmology,
M.L.B. Medical College,
Jhansi.

C E R T I F I C A T E

Certified that the work entitled "A CLINICAL STUDY OF ANTERIOR CHAMBER INTRA OCCULAR LENS IMPLANTATION" was conducted by Dr. SHIV KUMAR under our direct guidance and supervision. The investigations techniques statistics mentioned in the thesis were actually under taken by candidate himself. His observations have been checked by us regularly.

Date:

(B. [illegible] JAIN)
M.S.
ASSISTANT PROFESSOR IN OPHTHALMOLOGY,
M.L.B. MEDICAL COLLEGE,
JHANSI.

SUPERVISOR

C E R T I F I C A T E

Certified that the work entitled "A CLINICAL STUDY OF ANTERIOR CHAMBER INTRA OCCULAR LENS IMPLANTATION" was conducted by Dr. SHIV KUMAR under our direct guidance and supervision. The investigations techniques statistics mentioned in the thesis were actually under taken by candidate himself. His observations have been checked by us regularly..

Date:

(VIJAY MISURIYA)
M.S.
Assistant Professor in Ophthalmology,
M.L.B. Medical College,
Jhansi.

CO-SUPERVISOR

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Date:

(VIJAY MISURIYA)
M.S.
Assistant Professor in Ophthalmology,
M.L.B. Medical College,
Jhansi.

CO-SUPERVISOR

C O N T E N T S

	Page No.
INTRODUCTION	
REVIEW OF LITERATURE	
MATERIAL AND METHOD	
OBSERVATIONS	
DISCUSSION	
SUMMARY AND CONCLUSIONS	
BIBLIOGRAPHY	
APPENDIX	

INTRODUCTION

INTRODUCTION

Development of cataract is a common problem after the age of fifty years. Hence it is a leading cause of blindness in the old age. The only treatment of the cataract is extraction of cataractous lens by extracapsular or intracapsular extraction method.

Cataractous changes may also occur in the early age of life as a congenital cataract or other stages of life due to different etiologies.

After extraction of the lens, the person becomes highly hypermetropic and accommodation is lost as well. The dioptric system must therefore be supplemented by a strong converging lens, usually +10.00D in previously emmetropic eye.

The spectacles had been conventional method of aphakic correction since long ago.

There are many disadvantages with the aphakic glasses like, magnification of image about 33%, false orientation of distance, ring scotoma, binocular diplopia if the other eye has good vision and spherical

aberration. Apart from it, bearing heavy spectacles are uncomfortable cosmetically the individual looks awkward and job prospects are also jeopardised.

Many of these problems are overcome by the use of contact lenses, which also have many disadvantages like, difficulty in management and handling by the elderly patient, inability to use for longer period, and chances of loss in active life like drivers, sportsmen etc. The magnification at times is nontolerable. The contact lenses can not be worn in dusty environment, dry eye and eyes with filtering operation.

The disadvantages of aphakic glasses or contact lenses are markedly overcome by use of intraocular lens implants. Optically also they are the right replacement of cataractous lens.

There are many types of intraocular lens implants (IOL) in use, of which different types of anterior chamber IOL, iris supported IOL implants and posterior chamber IOL implants are available.

The placing of anterior chamber IOL implant is an easier procedure and can be easily adopted without sophisticated equipment and instrument especially in small hospitals.

The intraocular lens implants have been reported to show greater advantage in relation to the conventional methods. We have encouraged to take a clinical study of anterior chamber IOL implantation.

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REVIEW OF LITERATURE

REVIEW OF LITERATURE

The first person who probably mentioned the possibility of lens implantation was a peripatic ophthalmologist of the 18th century named Tadini.

In 1795 casaamata the court eye doctor of Dresden performed cataract operation and implanted an artificial lens. The artificial lens was made of a glass and it was inserted through wound of cornea into the eye. He realised however that the glass lens could not substitute for the natural lens because during this experiment, the glass fell on to the bottom of the eye.

In 1949 at the end of cataract operation Ridley was asked by a medical student why he did not replace the sick lens with a new one. This question gave Ridley the impetus to explore the possibility of lens implantation. He designed a lens to imitate the natural lens, made of acrylic material after seeing as particles of inert material lodged in the eyes of fighter pilots injured during world war II.

The first intraocular lens was implanted by Ridley into the capsular bag following extracapsular cataract extraction at St. Thomas Hospital London on 29th November 1949 and second was implanted on 23rd August 1950. Ridley implanted approximately one thousand of his original IOLs. Many of his cases remain successful as late as 1966. By 1970 15% of his implants were removed.

Around 1959 Ridleys lens implantation were given up due to numerous postoperative complications like severe post operetive reaction, iritis, oclusion of the pupil by dense inflammatory membrane, late thickening and opacification of the posterior capsule, loss of anterior chamber, hyphaema, secondary glaucoma, iris atrophy from pressure by PMMA, decentring and IOL dislocation. Decentring and IOL dislocation were common. These were as a result of inadequate support and stabilisation of the fairly heavy IOLs. In 1954 Parry attempted to solve the problem of dislocation by anchoring the Ridley IOL by means of a tantalum thread with the ends left loose beneath the conjunctiva. Ridley's lenses are described as first generation lenses.

The complications and technical difficulties associated with original Ridley posterior chamber IOL led to attempt to place the pseudophakes in the anterior chamber using the angle recess for fixation purpose. There were several major advantages of anterior chamber fixation like implantation could be performed after either intracapsular or extracapsular cataract extraction, as secondary implantation and minimum dislocation of the IOL. These are described as second generation lenses.

Danheim in 1952 designed the first flexible closed loop type of anterior chamber lens. This lens failed because the haptic were manufactured from nylon (Supramid-6). This polymer undergoes a hydrolytic biodegradation when implanted in biological tissues. This led not only to irritation within the eye but to the breakdown of the loops and actual disintigration of the IOL with dislocation. Barraquer modified the Danheim lense and his own closed loop anterior chamber lens by cutting away one half of the closed loop in essence creating the first J-loop intraocular lens.

The Strampelli triped anterior chamber lens was first implanted on September 28, 1953. This became the prototype of rigid type anterior chamber lens.

Baron on 13 May 1953 was the first to implant a anterior chamber lens. It had the shape of a curved disc bent toward the cornea to such an extent that it came into contact with corneal endothelium. This introduced a problem that has been frequently encountered with many other style of anterior and iris supported IOLs, namely direct contact with the corneal endothelium leading to corneal decompensation.

The first choyce rigid anterior chamber (Mark I) appeared in 1956. Numerous modification of this lens have culminated in the production of the mark VIII and mark IX IOL. Complication such as uveitis gleucoma Hyphema (UGH) syndrome of Ellingson were initially attributed to warped foot plates and poor edge finish on some poorly made copies of choyces lens. However these problem have been corrected by improvement in manufacturing techniques. Thus various modern anterior chamber lens have been produced since 1980 (Table-1).

The most popular anterior chamber lenses at present are shepard universal IOL, Pannu universal IOL, universal radial C-loop IOL, Freeman universal IOL.

In June 1953 the development of iris supported lenses began with the introduction of the Epstein 'Collar Stud' lens. This was essentially an anterior chamber lens with iris fixation. The original iris clip lens was developed by Binkhorst in 1957 and was used for the first time on August 11, 1958. Binkhorst designed his lenses based on the facts that PMMA is well tolerated, posterior chamber lenses had, had a strong tendency to dislocate, anterior chamber lenses had a strong propensity to cause corneal complication, Ridley posterior chamber lense with posterior surface of iris did not in it self give rise in any complication. He believed that iris atrophy and its consequence were caused by uveitis and not by contact.

In effect the idea of iris fixated lenses represented an attempt to avoid major complication of posterior chamber lenses and the most important namely corneal touch and decompensation.

Other modification of iris supported IOLs included Binkhorst modification of his original IOL (Binkorst 2 loop iridocapsular lens) the use of metal as a loop material, the introduction of Epstein Maltese cross lens (which evolve into the Copland lens) introduction of Fyderov Style IOL (Sputunik iris clip lens), the worst Medallion Trido capsular lens and Worst platina lens. Many of the these iris supported lenses were very successful and did much popularise the concept of intra ocular lens implantation throughout the world. However various long term complications were noticed with these IOL styles in many cases. This led to an eventual abandonment of these styles in favour of well designed modern anterior chamber and posterior chamber lenses. From 1975 to the present information from the extensive clinical experience with IOL during the past decade has contributed to a rapid and highly innovative era of IOL development of utmost importance has been the increasing use of ICCE and posterior chamber implantation. Numerous modern well designed anterior chamber IOL have been introduced. There has been continuous improvement in lens design and in IOL manufacturing techniques are fore more refined and are safer. This is the era where

iris supported lenses began to give way to the more modern IOL styles. This era has also seen the transition from nylon to polypropylene and PMMA as loop material.

Lens implantation intensified the interest in the corneal endothelium. New methods of examination (such as specular microscopy, pachymetry scanning electron microscopy) are constantly expanding our knowledge of the physiologic, physical and chemical properties and role of the endothelium. New ways are being sought to protect the cells by using safer material (different plastics, glass, silicone etc.) which are less toxic and dangerous to the endothelium than PMMA, by coating existing lenses with such substances as methyl cellulose, sodium hyaluronate (Healon), chondroitin sulfate and serum. Ultraviolet rays filtering dyes are added to the lens to protect the macula from harmful radiation.

Table 1

Evolution of intraocular lenses

Generation I (1949-54) original Ridley posterior chamber

1. Ridley 1949
2. Parry (Implantation modification, 1954)

Generation II (Ca 1952-1962) Development of Anterior chamber lenses

1. Rigid or Semirigid
 - Baron 1952, 1954
 - Scharf, 1953
 - Strampelli triped, 1953
 - Schreck, 1954
 - Dietti, 1955
 - Choyce Mark I 1956
 - Ridley Mark I and II 1957, 1960
 - Boberg - Ans 1961
2. Flexible or Semiflexible loops
 - a. Closed loops
 - Dannheim 1952
 - Strampelli 1956
 - Lieb and Guerry 1957
 - b. Open loops
 - Barrequer, J-loop 1959

Generation III (Ca 1953-1970) Continued development of anterior chamber lenses and introduction of iris-supported lenses

Anterior chamber

1. Rigid or Semirigid
 - Choyce mark II 1957 to choyce mark VIII, 1963
2. Flexible

Iris supported

Epstein "Collar stud" lens, 1953

Binkhorst iris clip 1957, 1958

Epstein maltese cross (Evolved into copeland-Binkherst lens) 1962

Fyedorev type I iris clip 1964

Binkhorst iridocapsular 1965

Fyedorev V-type II Sputunik iris clip 1968

Worst Medallion iridocapsular, early 1970

Worst Platina early 197 08

Generation IV (Ca 1975 to present) - Major improvement in microsurgical techniques, lens designs and lens materials introduction of posterior chamber lens.

Anterior chamber lenses

1. Rigid or semirigid

 Azar Mark II 1977

 Tennant Anchor 1974

2. Flexible or semiflexible loops or foot plates

a. closed loops

 Leiske 1978

 Hessburg 1981

 Optiflex 1981

 Azar 912 1982

 Stable flex 1983

b. Open loops or footplates

 Kelman II 3-point fixation 1978

 Kelman Quadriflex 1981

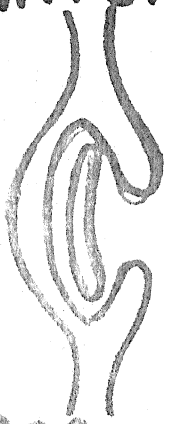
 Kelman Omnifity 1981

 Kelman Multiflex 1982

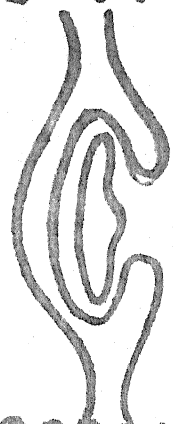
c. Radial loops

 Copeland 1982

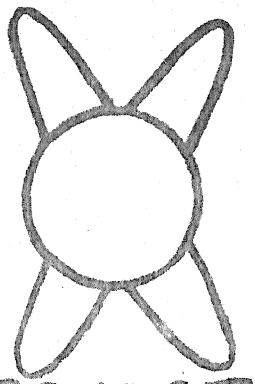
ANTERIOR CHAMBER ANGLE FIXATED LENSES IN PAST



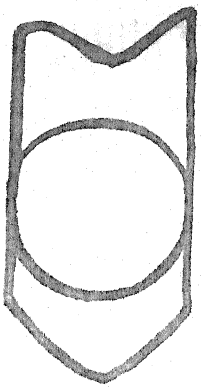
BARON



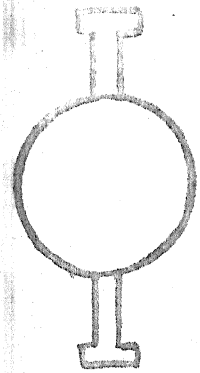
BARON



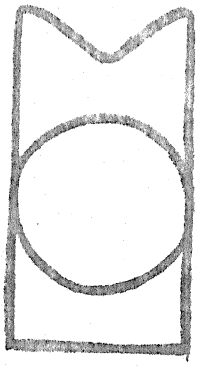
SCHARF



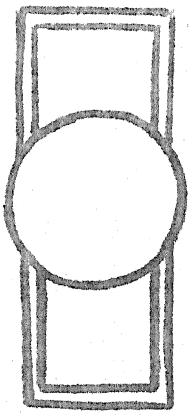
STRAMPEL



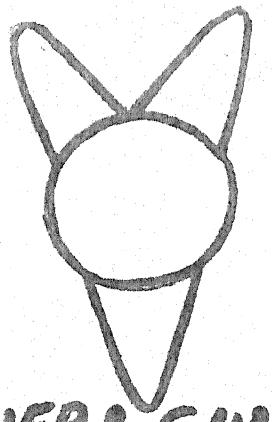
SCHRECK



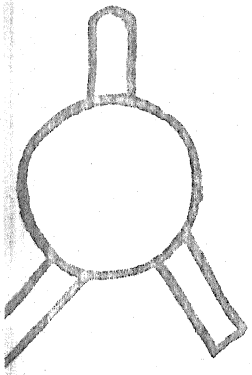
BIETTI



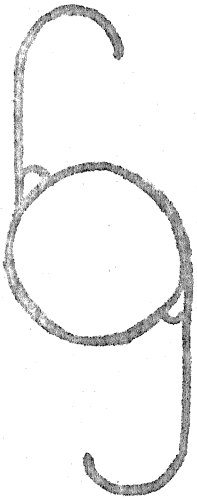
DANNHEIM



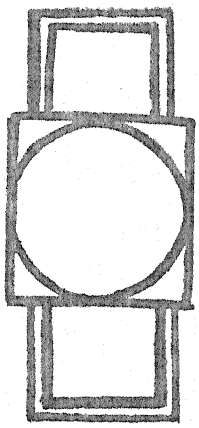
LIEB & GUAR



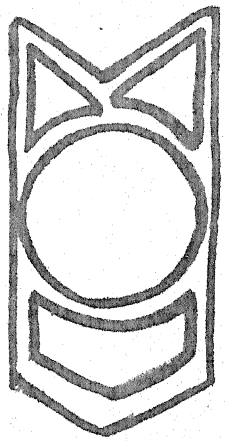
MARK-I



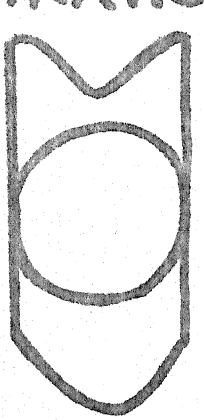
BARRAQUER

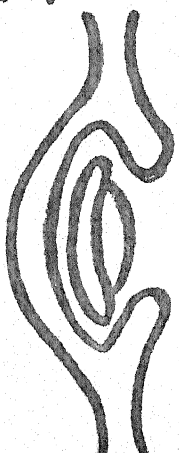


BARRAQUER



BOBERG-A





CHOYCE MARK-I

COMPLICATIONS DURING CATARACT EXTRACTION

The occurence of vitreous loss has been shown by J. Watts (1979-1983) in 3 cases out of 181 patients. Gholam A. Peyman cited the incidence 2-4%. The figure of OCTET (1984) was 2 out of 56 cases. P.N. Nagpal et al (1985) reported vitreous loss in cases out of 200 cases, J.F. Acheson et al (1988) reported 5% of 39 eyes and 3% of 50 eyes, Arun Mathur et al (1984) reported 5.35% incidence of vitreous loss.

The incidence of unplanned extracapsular extraction has been reported to be 4% (Gholam A Peyman) OCTET (1984) reported in 2 cases out of 56 cases. P.N. Nagpal et al (1987) encountered in 5 (out of 200) J.F. Acheson et al (1988) in 4(10%) of 50 eyes, and 4.47% was reported by Arun Mathur et al (1984).

The incidence of hyphaema encountered by Oxford cataract treatment and evaluation team (OCTET) (1984) was 4 out of 56 cases, in another study it was 2 out of 42 patients. OCTET (1984) encountered torn iris in one case out of 56 cases.

Expulsive haemorrhage is one of the most dramatic and serious complication of cataract surgery. Fortunately it occurs in only 0.1 to 0.2% of all cataract extraction (Gholam A. Peyman, Duke elder).

OPERATIVE COMPLICATIONS IN CATARACT EXTRACTION WITH IOL IMPLANTS

Orbital haemorrhage is a major complication of retrobulbar injection, Nikhil C. Kaushik (1981-1983) encountered in 26 cases out of 3453 patients Subhash P. Kadam (1987) saw in 6 cases out of 146 patients. All cases with retrobulbar haemorrhage were postponed for operation.

With the modern microsurgical techniques vitreous loss is estimated to occur in 2 to 4% (Gholam A. Peyman). In a study of 100 cases Vilas Bidaye (1988) reported vitreous loss in 2% cases, other authors like R.K. Mishra et al (1986) reported in 2 cases in a series of 183 patients, J. Watts (1979-1983) reported in 1 case out of 44 patients. In a series of 53 (eyes) it was reported to be 26% (Arch ophth 1987). Vitreous loss follows lens extraction when the vitreous is either pushed out of the eye by external pressure on the globe or pulled out by vitreous

attachment to the lens. It is postulated that a subclinical subchoroidal haemorrhage or serous choroidal effusion could also cause unexplained vitreous prolapse (Cholan A. Peymen).

S. Bharti et al (1994-96) in a study of 100 cases described disturbances of vitreous face. If vitreous remains in the anterior chamber with treatment the implantatic should be abandoned.

INTRA OPERATIVE SHALLOWING OF ANTERIOR CHAMBER

Prolapsing iris and bulging of vitreous causes shallowing of anterior chamber during operation. M.C. Mahata (1983) in a study of 20 cases reported vitreous bulge in 2 cases, bulging of iris lens diaphragm in 2 cases. Subhash P. Kadam (1987) reported, high vitreous pressure in 4 patient in the study of 146 cases and described that if vitreous pressure (Positive vitreous pressure) is high, no implantation should be carried out. In shallow anterior chamber, it is difficult to retain the anterior chamber with air. Air usually escapes when the lens is being inserted. Tucking of iris commonly occur. With the use of vision these complications are nil (S. Tony Fernandez 1989). Hyphaema: It is usually not significant and stops

spontaneously (S. Bharti et al 1984-1986). The source of bleeding may be from iris and schlemm's canal (Subhash P. Kadam 1987). He reported hyphemain 18 cases out of total 146 patients. In another study it was encountered in 8% cases (AJO 1989).

Incarceration of haptic into wound and iris: on occasion especially during learning phase of the surgery one or very rarely two feet of haptic of an anterior chamber angle fixed lens may not be placed properly under the scleral edge but left in the wound (Fechner) S. Bharti et al (1984-1986), in a study of 100 cases described about difficulty in introduction of the IOL, tucking of the iris with the haptic and breaking the foot of the intraocular lens during implantation in the anterior chamber. Lens loop may be engaged in the iris if pupil is kept dialated during implantation (Subhash P. Kadam 1987).

POST OPERATIVE COMPLICATION IN CATARACT EXTRACTION WITH IOL IMPLANTATION IN ANTERIOR CHAMBER

A mild degree of corneal oedema with folds in descemets membrane is commonly seen post operatively. It indicates the extent of operative trauma to the corneal endothelium (Fechner). The incidence of Striate Keratitis (Mild to moderate) has been reported 70%

(R.K. Mishra et al 1985) in a series of 183 patients, Daljit Singh et al (1984) encountered in 18.1% (with visilon) 12% (IOL without visilon) in an experimental study on rabbit. O.F. Billere, et al (1986) reported in 29-5% (with rigid anterior chamber IOL) and 19.82% (Flexible IOL) in the study of 500 patients. It was 2% incidence in the study of vilas Bidaye (1988) in 100 cases of intraocular lens implantations. Various other authors reported incidence of striate Keratopathy in different series of studies like 8 cases in a study of 146 cases (Subhash P. Kadam, 1987), in 4 cases (without visilon) and 6 cases (with visilon) in series of 60 IOL implants (S. Tony Fernandez et al 1986). Slight in 19.6% and moderate in 9.8% cases out of 100 cases (Daljit Singh et al 1983) in 2 cases in a study group of 12 patients (N.S. Raju 1983) and in 15 cases in the study group of 20 cases of M.C. Mahata (1983), he also reported corneal oedema in 15 eyes in the same study group. Post operative iridocyclitis may occur due to infection or may be related to surgical manipulation or occurring as a response to transient breakdown of blood aqueous barrier. The incidence of iridocyclitis was reported by R.K. Mishra et al (1985) to be mild

22%, moderate 63% and severe 11% in a study group of 185 patients. In the same series the incidence of vitreitis was 4-5% and endophthalmitis nil. In a study group of 500 IOL implantation O.P. Billore et al (1986) encountered uveitis in 14.7% (Rigid anterior chamber IOL) and 9.8% (flexible IOL) and 2% was found in a study group of vilas Bidaye (1988). In the study group of 146 cases, Subhash P. Kadam noticed iritis in 17 cases (mild) 6 cases moderate and severe in one case.

A shallow or flat anterior is an absolute emergency in the eyes that have anterior chamber IOL. Since the contact between IOL and corneal endothelium is extremely damaging to the cornea. The majority of much cases result from wound leak (Fechner). Daljit Singh et al (1983) reported the incidence 1.6% in case study of 100 patients. In a study of 158 patients S. Bharti et al (1984-1984) also encountered similar incidence.

M.C. Mahata (1983) reported in 4 eyes (of 20 eyes). In S. Tony Fernandez et al's study group of 60 patients mild iritis occurred in 2 (done without visilon) and 4 (where visilon was used). In another series of 100 cases. Daljit Singh et al (1983) studied

in 11.5% cases severe uveitis was reported in 0.9% (R.K. Mishra 1989), persistent iritis 0.4-1.2% (F.D.A. study). 3 patients out of 7 patients (Daljit Singh 1980), N.S. Raju (1983) reported persistent uveitis in 8-66% cases. Infectious endophthalmitis is a potentially devestating complication of any surgical procedure including IOL implantation most studies have found that infections endophthalmitis does not occur with high frequency following IOL implantation than one could anticipate following simple cataract removal. Two major epidemic occurred in 1975 and 1976 (Apple D.J. et al 1984, Fechner, Alpar). The cause of infectious endophthalmitis was contamination of neutralising solution (Sodium bicarbonate). In 1975 13 patient developed fungal endophthalmitis following IOL implantation. In 1976 8 patient developed pseudomonas aerogenous endophthalmitis. The incidence of toxic lens syndrome (Sterile endophthalmitis) has been reported to be 7% by the pack method and 1.3% wet pack method of sterilization (Apple D.S. et al 1984, Alpar 1982). In a study group of 146 patients Subhash P. Kadam (1987) reported endophthalmitis in one case $4\frac{3}{4}$ month after operation.

In the study group to 158 cases S. Bharti et al (1985) also encountered iritis and endophthalmitis. There was no incidence of endophthalmitis or any kind of infection in study group 185 patients (R.K. Mishra et al 1985) and 25 patients of Y.N. Paranjpe (1983) study.

In a study group of 220 cases R.K. Mishra et al (1989) in 5 years study period revealed iris atrophy in 60%, pupillary capture 4.5%, tilt or rotation of IOL in 8.1%, irregular anterior chamber depth in 2.2% liberation of pigment in 30%, K.P.'s 2.2%. In IOL implanted cases Y.N. Paranjpe (1983) found iris pigment deposits on IOL surface and anterior viteous face on 3rd day which reduced after 15 days of operation. N.S. Jaju (1983) did not find pigment deposits on the IOL in a study group of 12 patients. There was no incidence of dislocation. The circumciliary flush of low grade persisted in 6 cases (50%) for 2-3 weeks. The incidence of iris tuck, dislocation, iris atrophy was nil in a study group of Daljit Singh (1980). J. Watts (1979-1983) did not encounter iris tuck, pupil block and iris prolapse in the study of 44 patients implanted with intraocular lens in the anterior chamber.

Tucking of iris (entrapped fold of peripheral iris tissue) in the angle by haptic, usually occur during insertion, if IOL is angled too posteriorly. An oval pupil with vertical axis parallel to the axis of the IOL is characteristic, but this may not be readily apparent when the pupil is partially dialated at the time of surgery. R.K. Mishra et al (1985) reported in the study group of 185 patient the incidence of iris tuck and distored pupil in 15% cases, riding of pupillary margin over the lens in 2% cases, upper loop engaging in iridectomy in 2% cases, axial rotation of the lens in 5% cases, adhesion between the lens and iris in 4% cases, anterior dislocation and superior loop slipping out in 0.3% air behind the implant in 1.6% cases, precipitate deposition on the IOL with no uvelitis in 7% cases. Mild distortion of the pupil was found in 3% moderate in 4.9% and marked 2%. Iris atrophy at the contact with IOL was in 10.9% (mild). 1.6% (moderate) and 2.1 (severe). In a study group of 500 patients O.P. Billore et al (1986) reported iris tuck in 22.02% (Rigid IOL) and 8.19% (flexible IOL), pupillary distortion in 28.16% (Rigid IOL) and 8.13% (flexible IOL), lens matter in pupil 9.68% (Rigid IOL)

and 1.16% (flexible IOL), Pigment dispertion in 24.22% (Rigid IOL) and 13.11% (flexible IOL), Vilas Sidaye (1988) reported opacification of lens in 1% in a study of glass lenses in 100 patients. Subhash P. Kadam (1987) reported in his study group of 146 cases the incidence of iris tuck in 6 cases and internal iris prolapse 4 cases. The tremulousness of the implant occurred in 2 cases. Ciliary tenderness was found in 2 cases.

Jonathan M. Frantz (1988) reported 3 cases with 85 JM anterior chamber IOL had pain photophobia, diminished vision. There was pigment with flare seen in the anterior and posterior surface of the optic of the IOL which had bowed backward touching the anterior iris stroma.

The cornea can decompensate if large amount of endothelial cells are lost depending on surgical technique and type of IOL used, the implantation of IOL following cataract extraction may be more harmful to corneal endothelium than simple cataract extraction (Alpar and Fechner). Average endothelial cell loss following routine intra capsular cataract extaract extraction has been shown to vary between 8% and 12%

(Jaffe et al), Worst et al (1984) documented that even momentary contact between PMMA and endothelium caused 20 to 30% cell loss in rabbit and human corneas. In Jaffe's series 35 to 40% endothelial cell occurred in IOL cases (Perstet et al 1977). In Gould's (1980) series the average cell loss was 50% compared with the about 10% of Knight (1978) and in the cases of Sugar et al (1986) 35.2%. The influence of the endothelial microscope is evident from the statistics that involve eyes operated on after 1976. Hirst et al (1977) found and average of 14% endothelial cell loss in cataract with implant versus 13% in cataract without implant. Dron and Waltman (1978) reported 11.6% after uncomplicated cataract extraction versus 4.1% after cataract operation without lens implantation. In complicated lens implantation, especially with presentation of vitreous the cell loss increased to 65-5% (Kraff et al 1978). It is found that there is a close relationship between cell loss and degree of surgical trauma (John J. Alper, Paul U. Fechner 1986) Little (1979) described that on 3rd post operative day in a clear cornea without descemet fold, cell loss was 0-10%, in clear cornea with descemet membrane folds cell loss

was 0-10%, in clear cornea with descemet membrane folds cell loss was 10-20% in strate keratitis cell loss was 15-35%, in the area of cornea with firm epithelial edema cell loss occurred 35-60%. In area of cornea with bullous epithelial oedema cell loss occur 50-70%, in cloudy cornea cell loss was more than 70% (John J. Alpar, Paul U. Fechner 1986). In FDA study the incidence of corneal endothelial dystrophy (Pseudophakic bullous keratopathy has been reported to be 1.2% in a year follow up (Apple D.J. et al 1984).

Hyphema is fairly common but usually innocuous complication most frequently occurs between the second and seventh post operative days. It is caused by bleeding from small vessels crossing the wound. Minor trauma may precipitate hyphema in some cases. In a study group of 146 cases Subhash P. Kadam (1987) new hyphema in 3 cases which was well controlled in 4 days. In S. Tony Fernandez, et al's study of 60 ICL implants hyphema occurred in 1 case (ICL used without visilon) and 2 cases (ICL used with visilon), Daljit Singh et al (1983) reported 6.5%. It was 12% in the study group with ICL A.B. Azar 912 anterior chamber IOLs (Arch ophth 1987).

Rise in intraocular pressure (above 20.6mm Hg schiotz) has been reported in 7% cases of n, 7th day after operation. 1.6% on 15th day and 0.54% on 45th day in a study of 185 cases, (R.K. Mishra et al 1985). J. watts (1979-1983) reported in 2 cases out of 44 cases of anterior chamber IOL implant. Daljit Singh et al (1984) reported glaucoma in 8.33% in a experimental study group in rabbits. In a study of 500 patients. O.P. Billore et al (1984) found 7.92% incidence (Rigid anterior chamber IOL implants) and 1.6% (Flexible loop anterior chamber IOL implant), 2% incidence was revealed by V.K. Bidaye (1988). S. Bharti et al (1984-1986) also encontered acute glaucoma in a study group 158 cases. Subhash P. Kadam (1987) noticed 4 cases of 146 patients study. R.K. Mishra et al (1989) found in 3.1% cases. In a study of 53 patients implanted with IOL A.B. Azar 912 AL IOL the incidence of glaucoma was 13%. In surgical style leiske AC IOL, implantation secondary glaucoma has been described as late complication on long term study (Arch Ophth. 1987).

R.K. Mishra et al (1985) reported corneal dystrophy 1% in a series of 185 cases. O.P. Billore

et al (1986) reported corneal oedema in 7.9% (Rigid type anterior chamber IOL implanted cases) and 16-72% (Flexible anterior chamber IOL implants), corneal decompensation 2.7% (Rigid anterior chamber IOL) 11.4% (flexible anterior chamber IOL) in a series of 500 patients. Daljit Singh (1980) reported endothelial corneal degeneration in 2 cases in a series of 7 cases of IOL implants. In the study group of M.C. Mahata persistant corneal edema occured in 3 eyes out of 20 eyes.

Jonathan M. Frantz (1988) reported endothelial cell loss 28.5% in 3-6 months period. In study of IOL A.B. Azar 912 anterior chamber intraocular lens the incidence of corneal oedema was 12%. In surgidev style leinke A.C. IOL study Pseudophakicbullous keratopathy has been described as a late complication on long term study (Arch ophth 1987). In a study of 44 patients J. Watts (1979-1983) did not come across any such case of corneal decompensation.

Cystoid macular edema (Irvine Gass syndrome) is more frequent following intracapsular extraction (particularly when associated with vitreous loss) than uncomplicated extracapsular extraction. Prostaglandin in

have been implicated as direct mediator of the noxious stimulus.

In J. Watts (1979-1983) study of 44 anterior chamber IOL implanted cases CME occurred in 1 case. In a study of 53 eyes implanted with semiflexible close loop IOL (IOL AB Azar 91X AC IOL) the incidence was 13%, in Surgidev style leiske AC IOL. 3.2% (Arch Ophth 1987). R.K. Mishra et al (1985) reported 15.8% CME appeared on 7th day in 1.6% cases, on 15th day in 2.2% cases and on 30th day in 10% cases. CME disappeared in 2 months in 14%, in 3 months in 7.8% cases and in 1.6% cases it remained unresolved in 6 months. In series of 158 cases CME was experienced in 6 cases (Subhash P. Kadam 1987). The incidence of macular oedema has been documented highest in anterior chamber intraocular lens implantation, 665 out of 27919 (Recent advances in Ophthalmology by Davidson 1986), Daljit Singh 1982 delineated incidence of clinical CME in 2-3% cases and 40-50% cases angiographically. The incidence remain 10% in a study group of R.K. Mishra et al (1989). S. Bharti et al also mentiond occurrence of EME while studying 158 cases of IOL implants in the anterior chamber, M.C. Nahata (1983)

reported in one eye out of 20 eyes N.S. Raju (1983), in a study group of 12 patients and S. Tony Fernandez et al (1986) in study group of 60 cases did not encounter any case with CME.

The frequency of Retinal detachment is about the same for pseudophakic and aphakic eyes provided no vitreous loss occurred during surgery and if it did, a proper vitreous toilet was performed (Alpar, Fechner 1986). S. Tony Fernandz et al 1986) reported retinal detachment in one case out of IOL implanted cases. In various studies by different authors (J. Watts, Jonathan M. Frantz, Daljit Singh, R.K. Mishra, O.P. Killore, Subhash P. Kadam, S. Bharti) no such incidence of retinal detachment was encountered.

In the study group of 60 IOL implants 20 patient complained of disturbance in looking at light, 2 cases complained of moving shiny objects in front of the eye 3 cases had tenderness. IOL with intracapsuler extraction gave good results as compared to extracapsular extraction. It was concluded that for Indian condition intracapsular extraction with anterior chamber flexible lenses are ideal (S. Tony Fernandez et al 1986).

In the study group (60 IOLs) of S. Tony Fernandez (1986) the visual results achieved after correction or without correction were 6/12 to 6/12 by 70% cases 6/18 to 6/36 by 26.2%. Causes of low vision were macular changes in 8 eyes, corneal opacity in 4 eyes. No reason was found in 4 cases. 4 eyes did not require correction for distant vision, 14 eyes required sphere but no cylinder, 18 eyes required cylinder upto +4D and 2 eyes required above 4D cylinder.

R.K. Mishra et al (1987) revealed that 6/6-6/9 vision was attained by 35% cases, 6/12-6/18 attained by 46%, 6/24 achieved by 14.6% and 6/60 by 6.50% cases. Binocular vision was very good in 40% cases, good in 70%, satisfactory in 9% and poor in 12%. As far as patients satisfaction was concerned 49% (very good) 30% good, 14.5% satisfactory and 6.5% poor.

In the study groups of O.P. Billore (1986) the visual results were 6/12-6/6 in 78% (group I) and 76% (group II), 6/36-6/18 could achieved by 15% (group I) and 17% (group II), CF - 6/60 achieved by 7% each group.

Vilas Bidaye (1988) reported that 6/6-6/12 was achieved by 64%, 6/12-6/24 by 23%, 6/24-6/60 by 7% and 6/60 by 01%.

The visual results in the study group (158 eyes) of S. Bharti et al (1985) were 6/6 by 36-70%, 6/9 by 47.46%, 6/12-6/18 by 12%, 6/24-6/36 by 3% and 4/60 saw by 0.63% cases.

T.M. Paranjpe (1983) concluded the results of visual acuity in 25 IOL cases were 6/6 by 4 eyes and 6/12 saw by 21 eyes.

In the study group N.C. Mahata (1983) the results of 20 IOL cases were 6/12 or better saw by 9(60%) 6/18 saw by 4(26.7% and 6/60 by 2 eyes (12.3%).

J. Watts's (1984) report of visual acuity among the 181 cases, were 6/12 or better achieved in 92% and less than 6/12 was achieved in 8% cases.

MATERIAL AND METHOD

MATERIAL AND METHOD

The cataract patients attending Out Patient Department of Ophthalmology M.L.B. Medical College, Jhansi were admitted in the hospital. In twenty five patients (i.e. 26 eyes) the cataract extraction with IOL implantation in the anterior chamber was done.

A thorough preoperative general, systemic and local examination and routine investigation were carried out.

The patient selected for intra ocular implantation were mainly senile cataract.

A thorough examination was done, mainly on hypertension, diabetes mellitus, asthma, thyroid disease, cerebrovascular insufficiency.

The patient having uniocular eye, complicated cataract, diabetic retinopathy, history of retinal detachment, endothelial corneal dystrophy, iris atrophy keratitis with corneal opacity, chronic glaucoma not controlled with medical treatment and high myopia were excluded from the present study.

The patients undergoing for IOL implantation, their refractory condition was determined preoperatively and implant of appropriate power was placed in anterior chamber.

PRIMARY REFRACTORY METHOD

A detailed past history regarding refractory condition of the patient was taken. If he was using any glasses and its power was recorded.

The power of the intraocular lens to be implanted was calculated by the formula :

$$18 + (PRE \times 1.25)$$

(PRE = Primary Refractory Error)

SELECTION OF INTRAOCULAR LENS

We had 'flexible open loop angle fixated anterior chamber lenses; (J-Loop IOL (Shah and Shah).

PREOPERATIVE PREPARATION

Night before the operation, patient was kept under light sedation with tab. Diazepam 5mg., acetazolamide 500mg and antibiotic drops (Chloromycetin).

Dilatation of pupil was done with dreoyn eye drops 10% started two hour prior to operation.

Tab. Diamox 500mg was given two hour prior to operation.

Injection Manitol 20% (0.3/kg weight) I/V started 20 minute before the operation (in cases selected for IOL implants).

ANAESTHESIA

Topical instillation of Lignocain 4%, Facial block and retrobulbar injection with lignocain 2% along with 1:1000,00 epinephrine.

OPERATION

After drapping the part, lid sutures were passed in upper and lower lid, suture passed in superior rectus muscle and fixed. A limbus based conjunctival section was made and vessels cauterised. A section was made from 9.0' clock to 3.0' clock position and preplaced suture passed at 12.0' clock position. One peripheral iridectomy was made. Intra-capsular cataract extraction was performed with cryomethod.

Visilon was introduced into the anterior chamber followed by implantation of the intraocular lens in the anterior chamber.

The section was closed with 5 to 7 corneoscleral sutures with 8-0 monoflament.

POST OPERATIVE CARE

All patients were kept under tab. Septran 2 BD, Tab. Brufen 400mg 1 TDS, Tab. B complex and daily dressing for seven days of the post operative period.

The patients were discharged from the hospital 7 days after the operation. During their hospital stay day to day observation was done and noted.

The follow up was carried out initially after 7 days of discharge when stitches were removed. Thereafter every 15 days till 6 weeks followed by monthly checkup in the Out Patient Department for 6-10 months.

The examination were carried out as per preforma, with the help of diffuse illumination, oblique illumination, slit lamp, gonioscopy, indirect, direct ophthalmoscopy, retinoscopy and visual acuity was noted. Tryglasses and tonometry was done in relevent cases.

OBSERVATION

OBSERVATION

The present study has been under taken in twenty five patient and twenty six eyes of cataract admitted in the department of ophthalmology of the M.L.B. Medical College, Jhansi.

I.O.L. implantation were done in the anterior chamber after doing ICCE.

The study of IOL implants in the anterior chamber was carried out from operative period to post operative follow up for 8-10 months studing from April, 1990 to Febuary, 1991. The average period of follow up was 6 months.

The diagnosis of cataract patient have shown in Table no. 1 and condition of other eyes shown in Table no. 2.

TABLE - 1

DIFFERENT TYPES OF CATARACT

Diagnosis	No.	%
Mature Cataract	18	72
Immature Cataract	6	24
Traumatic Cataract	1	4
TOTAL	25	100

In this study the number of senile mature cataract were (19). The number of immature cataract were 6 and the number of traumatic cataract was 1 included.

TABLE - 2

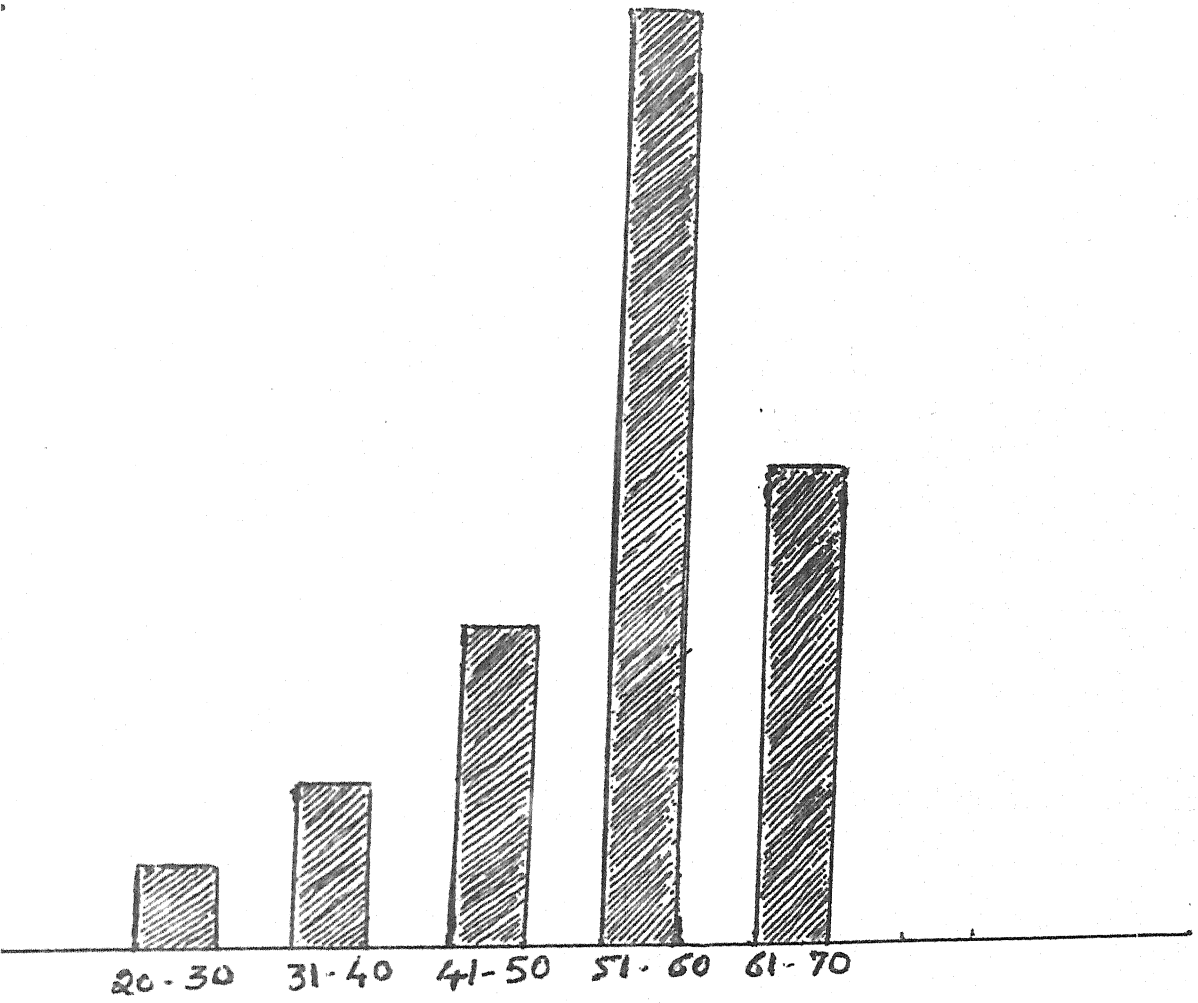
CONDITION OF THE OTHER EYES

Diagnosis	No.	%
Aphakia	-	-
Mature cataract	2	8
Immature cataract	15	60
Traumatic cataract	-	-
Normal	8	32
Total	25	100

In this group of patients only two cases had mature cataract in both eye and 15 case had immature cataract in the other eye.

The age and sex distribution of selected cases have shown in table no. 3.

ICCE WITH A.C. IOL

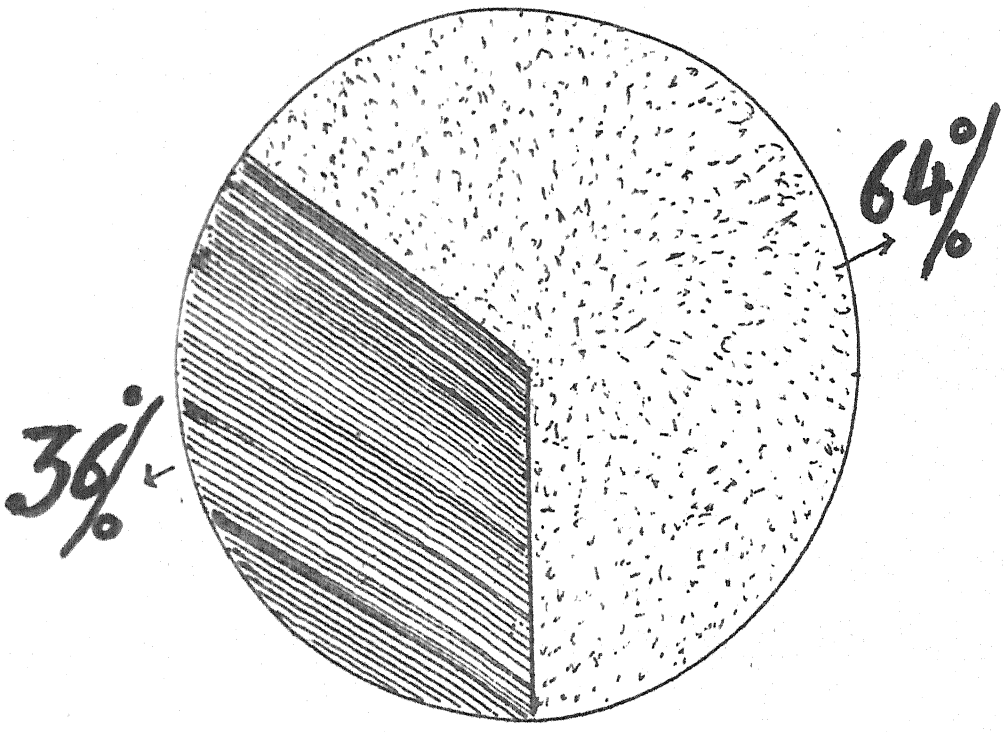


AGE-DISTRIBUTION

IN YEAR'S

MALE

FEMALE



SEX-DISTRIBUTION

TABLE - 3

AGE SEX DISTRIBUTION OF THE PATIENTS

Age groups	Male		Female		Total	
	No.	%	No.	%	No.	%
10-20	-	-	-	-	-	-
21-30	1	4	-	-	1	4
31-40	-	-	2	8	2	8
41-50	2	8	2	8	4	16
51-60	4	16	8	32	12	48
61-70	2	8	4	16	6	24
71-80	-	-	-	-	-	-
	9	36	16	64	25	100

In ICCE with IOL implant in anterior chamber the youngest patient was 29 years old and the oldest patient was 67 years old. The average age of the patients for IOL implant in anterior chamber was 53.48 year. The total number of males were 9 and female were 16.

TABLE - 4

OPERATIVE COMPLICATIONS

Complication	No.	%
Hyphaema	2	7.7
Incarceration of haptic into the wound	-	-
Spliting of descemet's membrane	-	-

Cases with RBH, vitreous prolapse and unfortunatly extra capsular extraction were excluded from the study.

Hyphaema was occurred in two cases. Bleeding subsided with in 2-3 minutes. Some difficulties were occur during implants of IOL in anterior chamber. No other complication occur during operation.

TABLE - 5

EARLY POST OPERATIVE COMPLICATIONS

Complications	No.	%
Striate Keratitis	5	19.23
Corneal Oedema	-	-
Hyphaema	3	11.53
Flat or shallow anterior chamber	-	-
Raised Intraocular tension	-	-
Iridocyclitis	4	15.38
Precipitates deposits over IOL	1	3.84
Distortion of Pupil	2	7.69
Pupillary capture	-	-
Iris tuck	1	3.84
Choroidal Detachment	-	-

In five cases of IOL implant in A.C. the striate Keratitis (19.23%) was occurred. Striate Keratitis was subsided with in 6-7 days. It was due to more manupulation during IOL implant in the anterior chamber.

The hyphaema was occurred in 3 cases (11.53%). Blood was disappeared in 4-5 days from the anterior chamber.

The iridocyclitis was occur in 4 cases (15.38%). It was mild in 3 cases and moderate in one case. Iridocyclitis was subsided in 3-4 weeks with the help of sub conjunctival injection of gentiaine and decadron along with the cycloplegic mydriate antibiotic with hydrocartisone ointment, systmic antibiotic anti-inflamatory and prednisolone drugs was given orally.

Iris tuck was occurred in one case and distortion of pupil occur in two cases. In slit lamp examination precipitate deposites over IOL was seen in one cases associated with iridocyctitis.

TABLE - 6

COMPLICATIONS IN LATE POSTOPERATIVE PERIOD

Complications	No.	%
Endothelial corneal dystrophy	-	-
Cystoid Macular edema (CME)	-	-
Retinal detachment	-	-
Iris atrophy	-	-
Uveitis, Glaucoma, Hyphaema (UGH) syndrome	-	-
Adhesion between iris and IOL	-	-
Persistent iritis	-	-
Flashing of light	2	8
Tenderness	-	-

During follow up of six weeks period. There was no such occurrence in IOL implant except two cases with IOL implant persistently complained of flashing of light in front of the eye till 3 months, which gradually subsided. There was no occurence of corneal endothelial dystrophy, uveitis, glaucoma, hyphaema (UGH) syndrome, retinal detachment, formation of adhesion between haptic and iris and iris atrophy in any case.

TABLE - 7

Number of complications	No.	%
Total number of complications	18	69
Total number of eyes having complications	09	34.6
Eyes with more than one complication	05	19.2
Eyes without complications	17	65.3

TABLE - 8

VISUAL ACUITY RESULTS AFTER CORRECTION WITH SPECTACLE LENSES

Visual acuity	No.	%
6/6 - 6/12	20	77
6/18 - 6/24	06	23
6/36 - 6/60	-	-

When visual acuity was observed after correction with glasses 6 weeks after operation, 77% cases of IOL implant achieved 6/12 or better vision, 6/24 or better vision was achieved by 23% cases of IOL implant. In 19.2% cases (Table 9) with IOL implant, did not require any correction for distant vision, 38.4% required sperical correction upto ±2 whereas 38.4% required

sperical correction along with cylindrical correction upto ±2D. Good binocularity was achieved by all cases with IOL implants achieved satisfactory binocular vision. They were also given refractory correction in unoperated eye. All cases with IOL implant were well satisfied (Table 9). The cases of IOL implant could resume their respective work after 6 weeks without any problem.

TABLE - 9

REFRACTORY CORRECTION WITH DIFFERENT TYPES OF LENSES

Correction of vision		
No Correction for distant vision	(6) (23.07%)	
Sphere but no cylinder	(10)(38.46%) Sphere upto ±2D	
Cylinder upto ±2D	(10)(38.4%)	Sph upto ±2D / Cyl upto ±2D



[illegible] - [illegible] CHAMBER-INTRA OCCULAR
[illegible] IMPLANTATION AFTER - 2 - MONTHS



NTERIOR CHAMBER IOL. IMPLANTATION(LC)
TAKEN AFTER 4 DAY'S



PHOTOGRAPH- ANTERIOR CHAMBER I.O.L. IMPLANTATION (LE)
TAKEN AFTER 4 DAY'S

DISCUSSION

DISCUSSION

Cataract is the main problem of old age and surgical intervention is the only remedy of cataract. The quality of vision is more or less resemble with that of phakic eye after the cataract extraction with IOL implantation.

The number of complication is much higher in IOL implantation in comparison to simple cataract extraction.

Since 1949, after Ridley's first IOL implant in posterior chamber of eye there have been number of changes from time to time in the field of intraocular lens implantation. Ridley reported higher incidences of complication with IOL implantation during his early series of operation, in which there were very high post operative myopia (-15D to -20D), severe post operative iritis, occulusion of the pupil due to dense inflamatory membrane, opacification of posterior lens capsule, loss of anterior chamber, hyphaema, secondary glaucoma, iris atrophy due to pressure of IOL (PMMA), decentring and dislocation of intraocular lens. The complications of Ridley's IOL implantation led to inception of anterior chamber IOL implantation, first by Baron 1952. Anterior

chamber intraocular lens implantation of that time also resulted into high rate of complications mainly corneal decompensation. Further discovery took place with high incidences of complications, mainly iritis, iris atrophy, dislocation of lens, pigment dispersion and poor pupillary play. Hence the use of iris supported iris clip lenses declined abruptly thereafter. Since 1980 anterior chamber lenses and posterior chamber lenses have been widely used. The advantages of anterior chamber lenses are many, as they can be used in cases of intra-capsular or extracapsular cataract extraction, can be implanted primarily or secondarily and easy to place without sophisticated equipments. In trained hands the anterior chamber lens implantation give excellent results. In present study the complication is seen in 26 eyes of 25 patient of IOL implantation in anterior chamber.

OPERATIVE COMPLICATION

The operative complications were observed in IOL implantation in anterior chamber of eye. Hyphaema was encountered in (7.7%) ICCE with IOL implantation in anterior chamber. The incidence of hyphaema in ICCE with IOL implantation in anterior chamber of eye have

been reported 12.3% (Subhash P. Kadam 1987) and 8% (AJO 1989). Cases associated with retrobulbar haemorrhage are ideally postponded (Gholam A. Peyman, Edward Duke Elder, Nikhil C. Kaushik 1983, Subhash P. Kadam 1987). Vitreous loss or vitreous in anterior chamber during operation may lead high incidence of post operative complication in cataract extraction with IOL implantation in anterior chamber. The incidence of complications are cystoid macular oedema, peaked or updrawn pupil, endothelial corneal dystrophy and retinal detachment (Alpar, Fechner 1986). When vitreous pressure is high or there is positive iris vitreous pressure into the AC it is difficult to implant an IOL into the anterior chamber although with visilon such problem is minimized (S. Tony Fernendex, 1986) unplaned ECCE or accidental rupture of capsule results in post operative opacification of capsule. Therefore above mentioned cases were excluded from the present study.

POST OPERATIVE COMPLICATIONS

Corneal complications mainly striate keratitis were in anterior chamber intra occular lens implantation (19.23%). In accordance with Daljit Singh et al (1984) - 16.1% (with IOL), C.P. Billon et al (1986) - 19.8% and

29.9% and S. Tony Fernandez 20.1%. However R.K. Mishra et al (1985) reported 70% (mild to moderate) in IOL implantation, which is quite higher. Higher incidences are also reported by M.C. Mahta (1985) - 75% in IOL implantation. This could be with no use of visilon, more manipulation during surgery or improper formation of anterior chamber during surgery. Lower incidence have been reported by Vilas Bidaye (1988) 2% and Subhash P. Kadam (1987) 4.4% which are too low and need no explanation.

The incidence of corneal oedema was not seen in any case of IOL implant in anterior chamber. The incidence of corneal oedema in IOL implants have been reported by O.P. Billore (1986) 7.9% (in rigid IOL) and 16.72% (Flexible IOL), M.C. Mahata (1984) 75% and in surgedev closed loop IOL (Arch opth, 1987) 12%.

The incidence of hyphaema was 11.53%. Subhash P. Kadam (1987), S. Tony Fernandez (1986), Daljit Singh (1983), Arch opth 1987, reported 2.1, 4.3%, 6.3% and 12% respectively. These studies are comparable to our present series of study in IOL implant in anterior chamber. In present study and the review of literature show a definite higher incidence of post operative

hypaema in IOL implant. This hyphaema resolve in all the cases with in one week.

The incidence of iridocyclitis was 15.38%. This may be due to excessive manuplation, surgical trauma to theiris or mechanical foreign body irritation by the implant itself. R.K. Mishra et al (1985) reported 22% mild and 63% moderate in IOL implant cases. C.M. Billore (1986), Vilas Bidye (1988), Subhash P. Kadam (1987), M.C. Mehta (1983), Daljit Singh et al (1983), S. Tony Fernandez (1986) and N.S.D. Raju (1983) reported 9.8%, 2%, 11.6%, 20%, 11.5%, 6.6% and 8% respectively. The higher incidence of iridocyctitis in IOL implants is comperable to most of the authors report and resolved with medical treatment in our series leaving no adverse effect.

Shallow anterior chamber is not encountered if proper corneoscleral sutures are applied to prevent wound leakage during early post operative period. Shallow anterior chamber have been reported by few authors like Daljit Singh et al (1983) who reported 1.6% and S. Bharti et al reported 1.8%. We did not come across such incidence in our study. Collapse of anterior chamber in IOL implant

may lead to serious complication due to damage of corneal endothelium. This can be avoided by proper suturing during surgery and proper protection of eye in post operative period.

Tucking of iris is a common finding in anterior chamber intra ocular lens implantation. The incidence have been reported more in rigid anterior chamber IOL's as compared to flixible loop anterior chamber IOL. R.K. Mishra (1985) reported 15%, O.P. Billore found 22.02% (Rigide IOL) and 8.19% (Flexible loop) Subhash P. Kadam (1987) reported 4.1%. Our figure of 3.84% is in accordance with the above figures. No adverse effect occur in post operative follow up.

The incidence of riding of pupillary margin on IOL was found to be 7.69%. This figure is slightly higher than the figure reported by R.K. Mishra et al (1985) 2%. The riding of pupillary margin on IOL lead to slight tilting of lens and high degree of astigmatic correction was needed in these patient. As the visual acuity was good after correction with astigmative glasses, no surgical manupulation was attempted. The riding of pupillary margin disappear after 8 weeks of follow up.

The riding of pupillary margin is not a serious complication and may disappear after some time as seen in our case. It can be avoided by using strong miotics after lens extraction and before IOL implant in anterior chamber.

The pigment deposit was seen only in IOL implant cases. In present study the no incidence was found. It is reported by O.P. Billore 13.11%, R.K. Mishra et al (1985) reported quite high incidence (30%). These pigments deposits disappeared with in one month. No effect in vision occur but may be attributed to irridocyctitis in these cases.

Deposition of precipitetes were found in 3.84% cases in our study. This figure is less than 7% reported by R.K. Mishra et al (1985). These deposits were seen on examination by binocular loupe.

The incidence of cystoid macular oedema was not seen in our present study of IOL implants in anterior chamber. In IOL implant J. Watt (1984) reported 2.2%, R.K. Mishra reported 15.8%, Daljit Singh (1982) 2-3%, N.C. Nahata (1983) reported 5% and Surgedev closed loop IOL's (Arch opth 1987) was reported 13%.

Symptoms like disturbances in looking at light and shiny objects were seen in IOL implant in anterior chamber in (7.69%) cases. These symptoms appear due to optical characteristics of intraocular lens, which causes internal reflexion of light. S. Tony Fernandez reported such incidences in 33% and having shiny objects in 5% cases. Jonathan M. Frantz also reported in 3% cases. These symptoms also disappear in our present cases of IOL with in 2 months with the adoptation of patients to these problem.

VISUAL ACUITY

Visual acuity in IOL implant 77% cases achieved 6/12 or better vision. Rest of the cases of IOL implant achieve 6/24 or better vision.

In present study of IOL implant cases the percentage of cases who achieved 6/12 or better vision were better than S. Tony Fernandez who reported 70%, Vilas Bidaya reported 64% and M.C. Mahata (1983) who found 60%. Our gigure coincide with R.K. Mishra et al 81% and O.P. Billore 78% achieves J. Watts reported 92%, Y.M. Paranjpe reported 84% and S. Bharti et al 90% are better than our results.

Binocular vision was obtained by almost all cases of IOL implant in anterior chamber. The patient were well satisfied as far as there binocularity and visual acuity was concerned. These patient did not face any problem after 6 weeks.

SUMMARY AND CONCLUSION

SUMMARY

Cataract is the main problem of old age and surgical intervention is the only remedy of cataract. The quality of vision is more or less resemble with that of phakic eye after the cataract extraction with IOL implantation.

The number of complication is much higher in IOL implantation in comparison to simple cataract extraction.

The present study has been carried out 'A CLINICAL STUDY OF ANTERIOR CHAMBER IOL IMPLANTATION' in 26 eyes of 25 patients.

These patient were admitted in the O.P.D. of eye department of M.L.B. Medical College, Jhansi, with their consent for anterior chamber IOL implantation after ICCE. The total follow up period was 8-10 months after discharge from the hospital.

The following complication were seen in this present study.

OPERATIVE COMPLICATION

Hyphaema in 7.7% cases.

In carciration of heptic into the wound and spilliting of descemets membrane was not found.

EARLY POST OPERATIVE COMPLICATION

(i)	Striate keratitis	19.23%
(ii)	Hyphaema	11.53%
(iii)	Iridocyclitis	15.38%
(iv)	Tucking of iris	3.84%
(v)	Distortion of pupil	7.69%
(vi)	Deposition of precipitates over IOL	3.84%

LATE POST OPERATIVE COMPLICATION

Flashing of light	7.69%

The total numbers of complications were 18 and the total number of eyes having complications were nine only. Eyes with more than one complication were five and eye without complication were 17.

VISUAL ACUITY

Visual acuity after spectacle correction in anterior chamber IOL implantation 77% cases achieved 6/12 or better vision. Rest of the cases achieve 6/24 or better vision.

CONCLUSION

The present study has been carried the complications in IOL implants in anterior chamber and to evaluate the use of anterior chamber intraocular lens implant.

The following conclusions are as follows:

1. The incidence of complications like hyphaema, iridocyclitis, striate keratitis are higher in IOL implant but can be treated with medical treatment and leaving no adverse effect.

2. Complication like iris tuck overriding of pupillary margin over IOL, distortion of pupil are some problems faced in intra ocular lens implant in anterior chamber . These problems do not create any adverse effect on the prognosis.

3. Flashing or glaring of light are more commonly seen in the anterior chamber IOL implant cases. But patient easily adopts to it with in two months.

4. Corneal complications such as endothelial cormeal dystrophy, uveitis, glaucoma, hyphaema (UGH) syndrome, persistent iritis, was atrophy.

9861

adhesaion between was and IOL are commonly reported complications in anterior chamber IOL implant cases but such complication do not come across in our present series of cases with the follow up period of 6-8 months.

5. Binocular vision, Visual acuity and no enlargement of image with better field of vision are greater advantages of anterior chamber IOL implant.

6. Comparatively anterior chamber IOL implant have better advantages and no much risk involved.

9861

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9861

APPENDIX

9861

PROFORMA FOR EXAMINATION

CASE NO.

1. Name of investigator:
2. Surgeon I/C.
3. Place: Medical College, Hospital Jhansi Deptt. of Ophthalmology.

Details of Patient

1. Name
2. Age/Sex....Wd/Bed...
3. Address
4. Occupation
5. Socio Economic Status
6. In habit of taking any intoxicant

A. PRESENTING SYMPTOMS:

1.
2.
3.

B. A brief history of present illness:

- PAST HISTORY:

H/O Diabetes
Hypertension
Any other :

Family History :

Examinations:

General examination

-CVS
-Respiratory System
-CNS
-Abdomen

9861

LOCAL EXAMINATION

		Rt.	Lt.
1.	Facial Symmetry		
2.	Eye brows		
3.	Eye Lashes		
4.	Eye lids		
5.	Conjunctiva - Bulbar		
	- Limbal		
	- Palpebral		
	- Intermarginal strip		
6.	Cornea - Size		
	- Shape		
	- Surface		
	- Curvature		
	- Lustre		
	- Transparency		
	- Sensitivity		
7.	Anterior Chamber		
	(i) Depth Normal/Shallow/deep		
	(ii) Contents - Colour		
	- Nature		
	- Flare if any		
8.	Iris - Colour		
	-Surface		
	- Pattern		
	- Atrophy (if any)		

9861

9. Pupil - Size
- Shape
- Colour
- Reaction to light
 - Direct
 - Consehsual

10. Lens - Position
- Transparency
- Any other finding

11. Visual acuity Rt. lt.

12. Digital tension

13. Tonometry Schiotz :
Applanation :

14. Fundoscopy :

15. Gonioscopy :

16. Perimetry :

17. S/L examination :

18. Refractory error - Primary refractive
- Retinoscopy

19. Diagnosis :

INVESTICATION :

(i) Urine examination

(ii) Blood routine examination

(iii) Blood Sugar

OPERATIVE HISTORY

1. Date of operation :

2. Type of anaesthesia :

3. Type of Surgery :

9861

4. Use of visilon :

5. Type of lens implantation :

 - Power of the lens :

6. Complications

Type	Rupture of lens	Vitreous Prolapse/ loss	Hyphema	Iris injury	Any other

Post operative follow up

Rt/Lt eye

Date of exam	Period	Conjuctive	Condition of wound	Cornea	A/C Postion of lens	Iris	Pupil	Others

19
1986